



# Meeting Summary

## Environmental Stewardship Scope Definition Work Group Meeting #1

**August 28, 2009, 9:30 am – 3:45 pm**

**Location: DWR Offices – West Sacramento**

**3500 Industrial Blvd.**

**West Sacramento, California 95691**

**Room 119**

### ENVIRONMENTAL STEWARDSHIP SCOPE DEFINITION (ESSD) WORK GROUP ATTENDANCE:

Name	Organization	Status
Lewis Bair	Reclamation District No. 108, Sacramento River West Side Levee District, Knights Landing Ridge Drainage District	Member
Chris Bowles	CBEC, Inc.	Member
Kelly Briggs	Department of Water Resources - Flood Management	Member
Peter Buck	Sacramento Area Flood Control Agency	Member
John Cain	American Rivers	Member
Scott Clemons	California Riparian Habitat Joint Venture	Member
Ellie Cohen	Point Reyes Bird Observatory	Member
Eric M. Ginney	Philip Williams & Associates	Member
Tom Griggs	River Partners	Member
John Hopkins	Institute for Ecological Health; Northern California Conservation Planning Partners	Member
Clarence Korhonen	City of Elk Grove	Member
Stefan Lorenzato	Yolo County Flood Control & Water Conservation District	Member
Monty Schmitt	Natural Resources Defense Council	Member
Pia Sevelius	Butte County Resource Conservation District	Member
Stehl, Alex	California Department of Parks and Recreation	Member
Susan Tatayon	The Nature Conservancy	Member
Tanis Toland	United States Army Corps of Engineers	Member
Chris Unkel	Ducks Unlimited	Member
Carl Wilcox	California Department of Fish and Game	Member
Randy Yonemura	California Indian Heritage Council	Member
Julia Cox	California Department of Parks and Recreation	Alternate
Anthony Falzone	Trout Unlimited	Alternate
Jennifer Hobbs	US Fish and Wildlife Service	Alternate
Nat Seavy	Point Reyes Bird Observatory	Alternate
Dave Zezulak	California Department of Fish and Game	Alternate

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Name	Organization	Status
Ken Kirby	Kirby Consulting Group	CVFMP* Executive Sponsor
Ted Frink	California Department of Water Resources	CVFPO**
Terri Gaines	California Department of Water Resources	CVFPO**
Marc Hoshovsky	California Department of Water Resources	DWR Lead***
Elizabeth Hubert	California Department of Water Resources	CVFPO**
Michele Ng	California Department of Water Resources	CVFPO**
Michael Perrone	California Department of Water Resources	CVFPO**
Yung-Hsin Sun	MWH	Consultant Program Manager
Matt Young	MWH	Team
Debra Bishop	EDAW/AECOM	Technical Lead
Lynn Hermanson	EDAW/AECOM	Team
Eric Poncelet	Kearns & West	Facilitator
Ben Gettleman	Kearns & West	Facilitation Support / Note Taker

\*\*Central Valley Flood Management Planning (CVFMP)

\*\*Central Valley Flood Planning Office (CVFPO)

\*\*\*California Department of Water Resources (DWR)

### Absent:

Ken Cumming	National Marine Fisheries Service	Member
Michael DeSpain	Mechoopda Indian Tribe	Member
Michael Picker	Sutter Butte Flood Control Agency	Member
Geoff Rabone	Merced Irrigation District	Member
Dan Ray	California Department of Parks and Recreation	Member
Jesse Roseman	Tuolumne River Trust	Member
Mark Tompkins	Trout Unlimited	Member
Doug Weinrich	United States Fish and Wildlife Service	Member

### Observers:

Mary Matella	UC Berkeley
Rose Mose	California Indian Heritage Center

### WORK GROUP HOMEWORK/ACTION ITEMS

- Review Meeting #1 Summary, and provide comments to Marc Hoshovsky ([mhoshovs@water.ca.gov](mailto:mhoshovs@water.ca.gov)) by September 11, 2009

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### ACTION ITEMS: PROGRAM TEAM

1. Facilitation team to send CVFMP scoping and flood-related legislative summary documents (or web links to these documents) to work group members, including relevant page numbers
2. Facilitation team to send Outlook invitations for ESSD Meetings #2-4
3. Facilitation team to send Meeting #1 Summary to work group members for review

### FUTURE MEETINGS SCHEDULE

The facilitation team announced the following future meeting dates for the ESSD work group. These dates were selected based upon the results of a doodle poll. The facilitation team will send Microsoft Outlook calendar invitations to the full work group:

- September 17, 2009, 9am–1pm (Location TBD)
- September 30, 2009, 1pm-5pm (Location: DWR – West Sacramento)
- October 13, 2009, 9am-1pm (Location: DWR – West Sacramento)

### MEETING OVERVIEW

The purpose of Meeting #1 of the Environmental Stewardship Scope Definition (ESSD) Work Group was to gain a shared understanding of the work products, roles and activities of the ESSD Work Group and initiate the first phase of scoping activities.

### MEETING GOALS

1. Confirm group charter, schedule and membership
2. Clarify relationship of work group to the larger FloodSAFE effort and other work groups
3. Identify and discuss key environmental stewardship “challenges” and “opportunities”

### SUMMARY

#### Welcome and Greetings

Marc Hoshovsky and meeting facilitator Eric Poncelet welcomed the meeting participants.

#### Opening Remarks

Ken Kirby welcomed the group and provided opening remarks.

#### Overview: FloodSAFE & CVFPP

Ken Kirby gave a PowerPoint presentation on FloodSAFE and the Central Valley Flood Management Planning Process. This included a description of the relationship between the ESSD work group and the regional conditions work groups. The PowerPoint is available on the CVFMP Program Web site: <http://www.water.ca.gov/cvfmp>.

Participants asked the following clarifying questions:

Q: Is the primary goal of FloodSAFE to reduce the chance of flooding as it pertains to humans and property? Is that the priority?

A: The state legislation defines the priority as humans and property. The focus is not just on property and people, however – it includes other objectives such as habitat protection.

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Q: How will information from other venues (e.g., CVFMP regional forums) be integrated into this work group process?

A: Anything that has been developed will be posted and available on the CVFMP Program Web site, and staff will be bringing key information that is developed to relevant meetings. The regional condition work groups should be thought of as independent bodies. The regional groups will have the challenging job of synthesizing and incorporating all the information that comes from the topic groups. Staff has designed the ESSD Work Group to work independently. The main charge of the ESSD work group is defined by the objectives identified in the charter.

### Introduction to ESSD Work Group

Marc Hoshovsky gave a PowerPoint presentation on DWR's approach to environmental stewardship as a way of contextualizing the work of the ESSD Work Group.

Work group members asked the following clarifying questions:

Q: You mentioned integrated flood management; what exactly will be integrated?

A: As defined in the glossary, flood management will be integrated across four different aspects of flood management as a system (read from the glossary): interconnection of flood management actions within broader water resources management and land use planning; the value of coordinating across geographic and agency boundaries; the need to evaluate opportunities and potential impacts from a system perspective; and the importance of stewardship and sustainability.

Q: Does "native species" (in the CVFP act) include people?

A: It does not include people in this context. However, a cultural resources section will be included in the Resource Condition Summary Report.

Q: What constraints is this planning effort facing?

A: Time is a constraint; the plan must be completed by 2012. There are others constraints as well – political, funding, and social. Reality, in effect, is a constraint. All aspects of the plan are open for discussion at this point, but some things will be easier to implement than others.

Comment: We should all consider that we have bond funding to address this issue. This is an amazing and unique opportunity, and we need to best take advantage of it.

### Charter Review

The facilitator and work group members reviewed the charter for mission and deliverables, membership, roles and responsibilities, process and work schedule of the ESSD Work Group. Following discussion and clarifying questions, work group members indicated that they understood the work group's charge and re-affirmed their commitment to achieve it.

During this discussion, Ken Kirby clarified that the deliverables from this group would be utilized in two main ways: to stimulate thinking for the regional conditions works groups about how to address the topic of environmental stewardship; and to inform the plan development team on the drafting of the document. Mr. Kirby further clarified that deliverables #3 and #5 in the charter relate specifically to the 2012 planning process:

3. A list of the key principles for guiding the development, integration and implementation of environmental stewardship features of the CVFPP.
5. A description of approaches or measures to evaluate CVFPP's effective integration and implementation of environmental stewardship elements.

Work group members asked following clarifying questions:

Q: Is there a reference list?

A: Yes, we are starting to compile a reference list. We want to put together a good first attempt of what references are out there, and get feedback from the group on what is missing.

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Q: I represent several organizations; how do I report back what we accomplished?

A: Summary reports are the best tool to share with others. There will also be homework assignments and materials to review and consider, and you can share that with your members and we will welcome their input.

### Identification of Environmental Stewardship Challenges (Exercise 1)

The facilitator provided instructions on the exercise, and the meeting participants were divided into three break-out groups. The first step of the exercise was to have each participant brainstorm challenges to environmental stewardship associated with flood management, write them on post-it notes, and stick them on the wall (The results of the first step are listed in Appendix A below). The second step was to have the break-out group participants group similar challenges together, and create a broader, synthesizing statement that represented each particular group challenges.

After each of the three groups created their synthesizing statements, they were placed together on a wall and reviewed by all participants in plenary. The participants then again grouped similar statements (same as step two in the smaller groups). Finally, each participant received five dots, and was asked to place a dot(s) on the group of challenges that for him or her was the highest priority (they could vote for the group statement, or directly to a subgroup). What follows is the grouping of synthesized statements, and the number of dot votes each received.

Note: the ESSD work group sorted/categorized the different challenges that emerged from the breakout groups but did not develop overarching synthesized statements for these challenges. As such, the different “groups” below simply contain a list of the challenges that were sorted/categorized as similar. Each code (A1, B3, C6, etc.) represents a challenge identified by breakout group A, B, or C. The individual challenges are listed in Appendix A.

#### Group 1: A8, B6(i), B9, C2, C3 (27 dots)

A8. Providing floodplain and riparian habitats to meet species needs and ecosystem services taking into account:

- Quantity needs
- Location within system
- Quality
  - Fragmentation
  - Functioning

B6(i). Restoring species/habitat to long-term viability in face of other past decisions, goals, plans and constraints.

B9. Protect and improve terrestrial and aquatic habitat. Restore connection to floodplains and continuity of the river/flood control system (headwaters to sea).

C2. Loss of habitat. (2 of 27 dots received)

C3. Lack of linkages and corridors.

#### Group 2: A6(i), B4(i), C10 (23 dots)

A6(i). How to set system up to change over time – adaptive management monitoring.

B4(i). Riverine process accommodating dynamic processes. Inappropriate and disturbed instream flow regime for species and habitats.

C10. Impacted physical processes that negatively affect ecosystem. Natural processes dynamic but flood system static.

#### Group 3: A3, A4, B8, C7, C8 (20 dots)

A3. Permit processes and requirements are complex, not well integrated, and time consuming. This can lead to deferral maintenance, which can translate to larger problems to fix at greater cost and environmental impact. It can also lead to conflicting objectives, and species vs. species.

A4. Existing laws/policies are rigid constraints.

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- B8. Out-dated existing policies and regulations (Title 33) for flood management and ecosystem needs.
- C7. Conflict between maintenance and habitat.
- C8. Constraints/conflict between maintenance requirements and regulatory requirements.

### **Group 4: C13 (14 dots)**

- C13. Lack of floodplain function.

### **Group 5: B2, C4, C6 (13 dots)**

- B2. Limited adequate high-quality science information and ecological monitoring to inform policy.
- C4. Need to develop system wide analysis tools.
- C6. Best available information is not used in the maintenance practices.

### **Group 6: A2, B1, B6(ii), B7, C15 (12 dots)**

- A2. Ineffective coordination between agencies and project proponents.
- B1. Insufficient coordination of flood management to environment, within agencies or with existing plans.
- B6 (ii). Lack of a coordinated approach to species conservation.
- B7. Bringing back CVFP to “locally led conservation interests” country and RCD and landowners.
- C15. Fragmented planning and funding.

### **Group 7: B4(ii), C9 (10 dots)**

- B4(ii). Flood system constraints on floodplain connectivity, hydraulic capacity, and natural processes.
- C9. Not enough area for flood conveyance and habitat.

### **Group 8: A9, A10 (9 dots)**

- A9. Reliance on reservoirs is diminishing opportunities to enhance ecological conditions and reduces groundwater. (1 of 9 dots received)
- A10. Managing water supply opps, flood releases, and project infrastructure (eg: levees, floodplains) to improve hydro-geomorphic and ecologic processes and conditions. (3 of 9 dots received)

### **Group 9: C16 (8 dots)**

- C16. Climate change.

### **Group 10: A5, C11 (8 dots)**

- A5. Current land use planning and ownership (eg: unwilling sellers or limited easement rights) could constrain our ability to implement integrated flood management (O&M and ecosystem) that is sustainable. Loss of agriculture and urban development on floodplains constrains flood management and environmental stewardship.
- C11. Urban encroachment in floodplains.

### **Group 11: A1, B3 (8 dots)**

- A1. Funding constraints.
- B3. Long-term funding to support ecosystem planning and implementation.

### **Group 12: C5 (7 dots)**

- C5. Lack of restriction to public access recreation.

### **Group 13: C14 (4 dots)**

- C14. Conflicts and synergies between eco-restoration and agriculture.

### **Group 14: A11, C12 (4 dots)**

- A11. Cultural norms needs to change to encourage stewardship. (1 of 4 dots received)
- C12. Lack of shared vision.

### **Group 15: A6(ii) (2 dots)**

- A6(ii). Current system is/was not designed to accommodate broad set of current needs/values, including changing hydrology, recreation, etc.

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### **Group 16: B10, C1 (1 dot)**

B10. Need for comprehensive invasive species control.

C1. Invasive species, plants and animals.

### **Group 17: B5 (0 dots)**

B5. Improving water quality for multiple uses, including drinking water, environment, etc.

### **Group 18: A7 (0 dots)**

A7. Given existing infrastructure, improving engineering and evaluation practices to sustain ecosystems.

## **Discussion on Exercise to Identify Challenges**

Following the exercise, there was a group discussion of the process and results of the exercise. Key comments made included the following:

- Policy was mixed with O&M; not sure policy was captured sufficiently
- Some were surprised funding didn't jump out more, since all solutions will need to be funded. Solving the funding issue will help address other challenges
  - You need to prioritize (i.e., know what you're doing) before you know how to spend
  - People have their own ecological issues, and we only had five dots, so it is possible that funding wasn't on top of their list in priority.
- Water quality and invasives species got 0 and 1 votes
  - The topics that received 23 and 27 votes implied water quality
- Some groups of challenges that received votes were very similar to other groups of challenges that did not receive votes
- Some of this is the difference between what is important, and what is the lever that impacts it. Some thought needs to be given to distinguish between what we want and what are the most important levers to get to that.
- Hierarchy of problems - you can't have more habitat and reduce conflicts until you have a bigger system (conveyance capacity), and a variety of strategies (setback levees, etc.) towards that
- A lot of these issues came up in the USACE Comp Study. The real challenge is getting them done.
- We need to work out conflicts with agriculture, and find promising synergies between competing interests.
- It would be helpful to have a conceptual model to illustrate the relationship between the various issues, and to identify the connections.

## **Identification of Environmental Stewardship Opportunities (Exercise 2)**

Exercise 2 utilized the same process as Exercise 1. The results of the exercise that emerged from the plenary discussion are listed below.

Note: the ESSD work group sorted/categorized the different opportunities that emerged from the breakout groups but did not develop overarching synthesized statements for each grouping. The work group did arrange the different opportunities within each grouping so that the most overarching or synthesis statements appeared at the top of the grouping. Work group members did not use dot voting to prioritize in Exercise 2. The individual opportunities are listed in Appendix A.

### **Group 1: Optimize existing/system operation to benefit multiple objectives. (B2)**

C2. Re-operate to restore hydrological processes.

A8. Reoperation of dams to improve use of water for environment and people.

### **Group 2: Modification and/or redesign of system or elements to accommodate multiple benefits. (B3)**

A6. Functional floodplains solve flood management and ecosystem challenges, and are resilient to climate change.

C4. Restore and strengthen habitats through linkage and large scale planning.

C1. Implement levee setbacks and bypasses.



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A7. Setback levees to expand floodplain and increase capacity and make space for habitat.  
A4. Flood bypasses create opportunity for expanding conveyance around constrained reaches.  
A12. Floodplain storage on agricultural lands is opportunity to attenuate the largest floods.

### **Group 3: Plan for economic sustainability. (C12)**

### **Group 4: Develop land management efficiencies. (C10)**

### **Group 5: Improve public awareness with environmental education. (C5)**

A5. Fostering sound stewardship by developing a sustainable, ecologically sensitive flood management plan can provide environmental education opportunities.

### **Group 6: CVFP process is opportunity to create major policy changes. (A9)**

B5. Policy legislation changes.  
A3. New legislation and programs that reduce barriers to restore water flow and habitat.  
C3. Develop private lands policies.

### **Group 7: Coordinate CVFPP with other programs, scientific information and entities. (B4)**

A2. System wide flood plan provides opportunity for integrating regional general plans/permits and HCPs/NCCPs.  
A11. Engage in long-term integrated planning and implementation that leverages existing partnerships.  
C8. Integrate proposed solutions.

### **Group 8: Utilizing new science and models to inform management. (C9)**

C6. Develop bioengineering approaches to flood management and use BMPs.  
A14. Use tools and concepts from Lund, et al. Williams, et al, (FAF) and other ecological and economic models to plan, prioritize and evaluate opportunities for multi-objective actions.

### **Group 9: Diversify and create new uses for public access and address public recreation demand. (C11)**

A13. Increase the use of levees and setback floodplains for access, trails, education, and recreation.

### **Group 10: Develop and leverage new and sustainable funding. (C7)**

B1. Utilize widest range of funding opportunities.  
A1. Funding from other planning and programs can provide funding for environmental stewardship in flood management and vice versa.  
A10. Utilize existing incentive programs to engage private landowners in riparian restoration.

## **Additional Perspectives to Capture**

The group was asked what people and perspectives were not represented in the room, and should be included in this process in some capacity. Work group members suggested adding the following representatives to the work group:

- Additional agricultural interests, private sectors landowners, Farm Bureau, and Rice Commission or other commodity groups that can represent agricultural interests
- State Water Resource Control Board, Regional Water Quality Control Board
- Flood system managers
- Bureau of Reclamation

## **Group Recap**

Facilitator Eric Poncelet reviewed the goals of Meeting #1, and the group confirmed that the goals of the meeting were achieved. Work group members seeking to report back to their broader constituencies on the outcomes of Meeting #1 should focus their reports back on the successful achievement of these goals.



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### Final Comments and Questions

Comment: Recreation was not recognized in the opening presentations, and its importance needs to be recognized.

Reply: We do recognize the importance of recreation, and the Regional Conditions Scoping Report will have a section on recreation.

Q: Will the plan include a set of environmental stewardship principles for the plan?

A: The plan will make recommendations on implementation, but the principles are more focused on the planning process, not the plan itself. This is an important distinction in identifying the responsibility and charge of this group. Measures of success will be related to how successful we've been in achieving this.

Comment: We should be mindful of FEMA's National Flood Insurance Program, and the ensuing litigation that has taken place in the Puget Sound. Mapping had a negative impact on species there, and we should keep this in mind.

Reply: This is a good reminder. Whatever we propose in this plan should aim to avoid running litigation down the road.

Comment: An important part of this process is identifying what opportunities our current system is missing that a refined system could take a better take advantage of.

Reply: Yes, this is captured in the plan's goals and objectives.

### Appendix A: Challenges

Note: Each code (A1, B3, C6, etc.) represents a synthesized challenge statement identified by breakout group A, B, or C. The bullets below each code represent the individual challenges that were identified during the initial “brainstorm.”

#### A1. Funding constraints.

- Levee set back opportunities limited by development, money, property restrictions.
- Funding constraints can delay maintenance – small fixes become bigger ones with greater impacts.
- Funding constraints.
- Being left out of work process funding.
- Funding for program.
- Money.

#### A2. Ineffective coordination between agencies and project proponents.

- Rec. district and water agency needs and coordination.
- Restoration projects coordination with flood control agencies.

A3. Permit processes and requirements are complex, not well integrated, and time consuming. This can lead to deferral maintenance, which can translate to larger problems to fix at greater cost and environmental impact. It can also lead to conflicting objectives, and species vs. species.

- Time required for permitting can delay maintenance – smaller fixes become bigger with bigger impacts.
- Lack of integrated environmental permitting.
- Conflicting requirements between habitat needs for competing ESA listed spp. (The single spp focus dilemma in permitting.)
- Narrow work windows can mean deferral maintenance. Again, bigger jobs with greater impacts.

#### A4. Existing laws/policies are rigid constraints.

- O&M manuals hard to change.
- Rigid (and potentially unrealistic) flood conveyance requirements that negate opportunities for restoration/enhancement.
- Existing authority from congress not compatible “Sacramento Bank.”
- Existing authority based on 1850s conditions and 1950s storage and conveyance.
- Levee setback opportunity limited by development, property restrictions.
- Corps vegetation on levee policy conflicts with species needs (SRA).

A5. Current land use planning and ownership (eg: unwilling sellers or limited casonent rights) could constrain our ability to implement integrated flood management (O&M and ecosystem) that is sustainable. Loss of agriculture and urban development on floodplains constrains flood management and environmental stewardship.

- Land ownership or easement rights – 0 always align with restoration work.
- Land tenure and floodways – keeping property owners whole.
- Development in floodplains.
- Urbanization of floodplains.
- Sustainability of communities in deep floodplains.
- Disconnect between planning and liability = floodplain development
- Agricultural land management. Eg: converting to vineyard.
- Preserving ag production capacity.

A6. How to set system up to change over time – adaptive management monitoring (i). Current system is/was not designed to accommodate broad set of current needs/values, including changing hydro, recreation, etc. (ii).

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- New flood infrastructure may limit access to water resources for recreation, damage view sheds, and decrease wildlife populations.
  - Levees not always designed to accommodate public access or linear trails.
  - Sizing the system to accommodate changing hydrology.
  - Anticipate, date, prepare for climate change impacts.
  - Implementing adaptive management science-driven.
  - Conflicts between water supply, flood management, and listed species objectives.
  - Development of economic and habitat modeling tools.
  - Better evaluations on environmental process for water quality.
- A7. Given existing infrastructure, improving engineering and evaluation practices to sustain ecosystems.
- Floodplain maintenance can leave behind an unattractive, denuded landscape.
  - Less intrusive testing (geotech; borings).
  - Rip-rapping (hardening) of stream banks.
  - Obsolete infrastructure (and the constraints it imposes) – think local/city bridges that are undersized.
  - Better sustainable engineering practices.
  - Levees too close to rivers.
- A8. Providing floodplain and riparian habitats to meet species needs and ecosystem services taking into account.
- Prioritizing riparian restoration sites.
  - Expanding shallow floodplain and shaded Riverine habitat.
  - Improve amount and quality of riparian habitat.
  - Determining where floodplain habitats can be restored, improved or created.
  - Determining how much floodplain habitat is needed to protect/recover listed species.
  - Recovery of sensitive species challenged by conflicting habitat needs.
  - Selecting the plant and animals we want to manage for.
  - Waterfowl vs. fish (a false conflict).
  - Prioritizing ecological function.
  - Levees reducing shaded riverine aquatic habitat.
  - How to link riparian patches – connectivity.
  - Other fragmentation of habitat.
  - Shredding of habitat into small and isolated pieces.
- A9. Reliance on reservoirs is diminishing opportunities to enhance ecological conditions and reduces groundwater.
- Conflicts with water supply needs and flood control needs.
  - Excessive storage of water in reservoirs rather than in the ground.
  - Balancing water supply and flood management.
- A10. Managing water supply ops, flood releases, and project infrastructure (eg: levees, floodplains) to improve hydro-geomorphic and ecologic processes and conditions.
- Keeping flood flows in the floodways.
  - Protecting and promoting geomorphic and riparian processes.
  - Identifying key ecological process and functions that apply in each part of the system.
  - Maintaining dynamic river processes.
  - Lack of hydrological connections between rivers and their floodplains.
  - Maintaining adequate river flows for full ecological function.
  - Set back levees after environmental process.
  - Disconnect between rivers and floodplains.
  - Using ecological process to produce desired landscape condition.

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- Restoring functional habitat that will bring the population level responses we seek.
  - How to use riparian to store water/replenish groundwater.
  - More floodplains for sustainability. True.
  - Interruption of natural geomorphic processes.
  - Supporting ecologically functioning floodplains (timing, function, depth of inundation).
  - Reduced ecological function in system, ie: levees cut off floodplains.
- A11. Cultural norms need to change to encourage stewardship.
- Viewing flood events as ecological and essential.
  - Less biologist and more Indians.
  - More inclusion.
  - DWR/state change culture.
- B1. Insufficient coordination of flood management to environment, within agencies or with existing plans.
- Coordination with other conservation planning efforts and existing plans.
  - Lack of coordinated approach to integrating flood management and ecosystem restoration.
  - Coordination among programs within single agencies.
- B2. Limited adequate high-quality science information and ecological monitoring to inform policy.
- How do we monitor changes in riparian ecosystem condition?
  - Need hydrologic models based on continual long term flow monitoring data to understand/plan better balance between environmental needs/support and flood management and water supply.
  - Science informing policy decisions.
  - Additional data and research is needed to identify causes of impacts to the environment.
  - Ecological monitoring.
  - Limited science knowledge of spp needs.
- B3. Long-term funding to support ecosystem planning and implementation.
- Funding for state to support long-term restoration lands plans and maintenance.
  - And long-term stream of funds. Maintaining local agencies often fund-constrained.
- B4. Riverine process accommodating dynamic processes. Inappropriate and disturbed instream flow regime for species and habitats (i). Flood system constraints on floodplain connectivity, hydraulic capacity, and natural processes (ii).
- Hard scaping of river banks.
  - Hydraulic capacity and implications for environmental stewardship.
  - Sufficient room/space for environment and flood system.
  - "Floodway" vs. "floodplain." Constraints posed by construction of flood control system.
  - Private erosion control structures which no longer support levees, eg: old cars, cement, rip-rap.
  - Development pressure in re-flood plain and especially in immediately adjacent to levees.
  - Levee systems disconnect rivers from floodplains, therefore limiting riparian/wetland/seasonal aquatic habitat.
  - Infrastructure barriers.
  - Complex aquatic habitat.
  - Disruption of dynamic river processes – (meander/migration).
  - Floodplain access.
  - Lack of flow management to mimic natural hydrograph.
  - Inverse hydrograph on rivers due to water supply needs/demands.
  - Adequate water supply for wildlife needs.
  - Need for extensive levee-setbacks.
  - Need to protect/reestablish meander belts and allow natural river functioning.
  - Loss of "natural" processes that drive system structure, composition, and function.
  - Sediment transport (sediment trapped behind dams/spawning gravel).

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- System asked to meet multiple needs and purposes for which it was not designed.
  - Flood reservoir operations and levee systems impact sediment transport processes – conflicts with habitat development/life history processes.
  - Need to retain floodwaters on floodplains for water supply – flood water detention – groundwater recharge – riparian habitat as erosion protection.
  - How to quantify what's needed for flow regimes.
  - Flow regimes for all life stages (migration/rearing/spawning).
  - Lack of water flows for ecological processes.
- B5. Improving water quality for multiple uses, including drinking water, environment, etc.
- Water temperature (cold water releases).
  - Water quality.
  - Agricultural drainage and associated impairments to water quality.
  - Methylation of mercury.
- B6. Restoring species/habitat to long-term viability in face of other past decisions, goals, plans and constraints (i). Lack of a coordinated approach to species conservation (ii).
- Threatened and endangered species – salmon, VELB, bank swallow, riparia brush rabbit, etc.
  - Protection for endangered/threatened species.
  - Need for restoration of rare species populations (including situations such as riparian birds extricated from Central Valley).
  - Protected species.
  - Comprehensive environmental permitting approach – NCCP-HCP.
  - No comprehensive state conservation strategy for habitats and spp recovery/protection goals.
  - How to deal with private/public infrastructure (eg: mobile home parks, water treatment plants) that are in the historic floodplain?
  - Constraints of existing flood infrastructure on restoration.
- B7. Bringing back CVFP to “locally led conservation interests” country and RCD and landowners.
- Lack of support for location conservation programs to implement “locally led conservation and service learning youth programs.”
  - Jurisdictional challenges between countries, AC of E, RCD's, reclamation districts, watershed groups, non-profits, state.
  - Private agricultural interest along riparian corridors “good neighbor policies.”
  - How to convince landowners to allow their land to be flooded.
  - Trust, willingness to risk together and willingness to sacrifice together.
  - Willing sellers.
    - Ability to sweeten government offers.
    - Incentives.
  - Traditional mindset fear/concern about new approaches.
  - Private property rights.
- B8. Out-dated existing policies and regulations (Title 33) for flood management and ecosystem needs.
- How to avoid the corporation's bad experience with the Comp. study? (historical perspective?)
  - Regulations are subject to interpretation by regulators, resulting in subjective policies.
  - Difficulty in de-authorizing Corps levees.
  - Corp levee veg policy.
  - Current reservoir rule curves are not considering environmental flow needs -> naturalized hydrograph.
  - Balancing public safety with environmental stewardship.
  - Systems approach needed.

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B9. Protect and improve terrestrial and aquatic habitat. Restore connection to floodplains and continuity of the river/flood control system (headwaters to sea).

- Lack of current riparian habitat mapping to identify remaining “pearls” of habitat.
- Need to achieve extensive restoration of riparian habitat.
- Remaining riparian habitat “islands” are not connected.
- Agricultural land as habitat.
- Access to US habitat (dams).
- Need to reconnect rivers with their floodplains.
- Need to maintain (protect) still-rural basins and floodplain areas.
- Riparian habitat (food production/shading).
- Riparian areas that we do have are generally not actively managed to produce desirable habitat values.
- Lack of definition of riparian habitat.
- Rearing/floodplain habitat.
- Spawning habitat.
- Habitat loss/degradation.
- Migration.
- Need for better maps of existing riparian habitat.

B10. Need for comprehensive invasive species control.

- Invasive spp.
- Lack of support for riparian invasive species and weed management areas – education and outreach youth programs.

C1. Invasive species, plants and animals.

- Exotic Species (plants and animals).
- Management/control of invasive species.
- Invasive species, plants and animals.

C2. Loss of habitat.

- Lack of habitat diversity.
- Loss of habitat VELB.
- Habitat loss.

C3. Lack of linkages and corridors.

- Lack of corridors.
- Access limited for both people and species (more linkages).
- Maintain/promoting habitat connectivity for native and special status species.

C4. Need to develop system wide analysis tools.

- Need to enhance planning tools, such as habitat conceptual models and economic models.
- Measuring environmental benefits and integrating measurement method into the flood management planning process.
- Developing system wide analysis tools to be used for identification and prioritization.

C5. Lack of restriction to public access recreation.

- Need for more access to river recreation such as trails, parks, boats, etc.
- Public access to areas converted by ecosystem.
- Access restrictions both cultural and recreational activities.
- Recreation facility boundaries and infrastructure are not very flexible.

C6. Best available information is not used in the maintenance practices.

- Lack of DWR maintenance plans for specific sites.

C7. Conflict between maintenance and habitat.

- Maintenance issues associated with ecosystem restoration options.
- Vegetation removal – impacts on fish habitat.

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- Flood control maintenance leaves areas un-useable and 'torn-up.'
  - Vegetation of levees – new corps rules of vegetation removal.
- C8. Constraints/conflict between maintenance requirements and regulatory requirements.
- No specific yellow stickies.
- C9. Not enough area for flood conveyance and habitat.
- Narrowness of the levee system and the corresponding lack of room for rivers to do what rivers do.
  - Existing system footprint is limited.
  - Lack of available/appropriate areas for mitigation (eg: shaded Riverine aquatic).
  - Study opportunities for set-back levees to accommodate flood flows.
- C10. Impacted physical processes that negatively affect ecosystem. Natural processes dynamic but flood system static.
- Altered ecology.
  - Unnatural hydrograph due to dams.
  - Investigate re-operation of storage reservoirs to meet downstream needs.
  - Flow levels that affect natural resources.
  - Long term geomorphic problems associated with levees.
  - Sediment transport not normal due to dams, levees, bank stabilization.
  - Conflict between conveyance capacity and riparian vegetation and geomorphic processes of sedimentation and erosion.
  - Erosion/change capacity from alternate hydrology and system conf.
- C11. Urban encroachment in floodplains.
- Compatibility issues between environmental and other land uses.
  - Historic train route on levee old Sacramento to Freeport (how to handle).
  - Management of lands in floodplains is expensive.
  - Minimizing encroachment into existing floodplains with new development.
  - Urban development in floodplain.
- C12. Lack of shared vision.
- Communities don't work together.
  - How to create easements/compensation to ag/land management for conversion to ecosystem.
  - Perceived conflict between public safety and habitat in the flood system.
  - Old-school thinking and actions by DWR staff.
  - Channel meander not encouraged by DWR maintenance.
  - No clear vision or goal.
  - Lack of understanding between flood system interests; maintainers not enviros and vice versa.
- C13. Lack of floodplain function.
- Existing levee placement
  - Lack of floodplain
  - Lack of connectivity between river and floodplain.
  - Challenge: establishing enough connectivity of river with floodplain to avoid stranding fish.
  - Re-connection of the floodplain to the river systems.
  - Challenge: allowing inundation duration to last long enough on floodplain areas to support ecological functions.
  - Levees have cut off groundwater recharge.
- C14. Conflicts and synergies between eco-restoration and agriculture.
- Identifying how agricultural areas can benefit from ecosystem restoration.
  - Conflicts between ecosystem restoration and agriculture.
- C15. Fragmented planning and funding.



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- Identifying and prioritizing floodplains appropriate for ecosystem/retaining in agriculture.
- Need to look at broader economic factors when evaluating the 'move' of a levee.
- Land acquisition and construction costs are very high to relocate levees.
- No good process to deal with levee maintenance mitigation.
- Approaching species management from an ecosystem perspective.
- Lack of coordination between conservation entities & flood control agencies.
- The complexity of improving conditions for flood conveyance or habitat in a system where one action has many consequences.
- Environment work is largely project driven.
- Lack of coordination between funding opportunities such as Calfed money and other endangered species money that would pay for environmental enhancements.

### C16. Climate change.

- Addressing potential changes to the system as a result of climate change.
- Climate change.

### Appendix B: Opportunities

Note: Each code (A1, B3, C6, etc.) represents a synthesized opportunity statement identified by breakout group A, B, or C. The bullets below each code represent the individual opportunities that were identified during the initial “brainstorm.”

A1. Funding from other planning and programs can provide funding for environmental stewardship in flood management and vice versa.

- Mitigation funding in Propositions 1B and 1E.
- Funding from BDCP could be leveraged with flood funding to expand capacity and restore endangered species habitat.

A2. System wide flood plan provides opportunity for integrating regional general plans/permits and HCPs/NCCPs.

- To reverse trends in lost habitat.
- National and state climate and sea level change policies can be leveraged.
- Regional general permits.
- Safe harbor agreements.
- Programmatic and regional rather than piecemeal and local conservation planning.
- Work with county and regional NCCP/HCPs to plan on landscape level.
- HCPs/NCCPs.

A3. New legislation and programs that reduce barriers to restore water flow and habitat.

- SB375 Blueprint process.
- San Joaquin river settlement opportunity to attenuate flood flows and restore habitat.
- New safe harbor legislation can help engage more private landowners in voluntary riparian restoration.

A4. Flood bypasses create opportunity for expanding conveyance around constrained reaches.

- Tidal marsh restoration under BDCP could expand conveyance from constrained reaches to unconstrained tidal zone.
- Sacramento ship channel creates opportunity for new flood bypass between the pocket and Prospect Island.
- South delta flood bypass.

A5. Fostering sound stewardship by developing a sustainable, ecologically sensitive flood management plan can provide environmental education opportunities.

- Foster ES I youth and the public through outreach and outdoor recreation.
- Connect stewardship ethic and practices to K-12 education.

A6. Functional floodplains solve flood management and ecosystem challenges, and are resilient to climate change.

- Functional floodplains solve flood management and ecosystem challenges, and are resilient to climate change.
- To develop floodplains to manage storm flows and reserve reservoirs for water supply.
- Existing system footprint has substantial habitat improvement potential with low cost.
- Projections of more extremes in water flow – and new funds to address climate change impacts and adaptation could be directed to riparian restoration.
- Plan for and take action to respond to climate change.
- Climate adaptation and mitigation strategies, eg: system re-operation.
- Create resiliency in system functions.
- Remote connectivity of habitats.
- Restore floodplain processes.

A7. Setback levees to expand floodplain and increase capacity and make space for habitat.

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- More to a levee set-back strategy for flood management (non-rip-rap/armoring).
    - Cheaper, better to address problem.
  - Setback levees.
  - Promote setback levees as a solution to flood conveyance with climate change.
  - Setback levees.
  - Increase flood capacity and set back levees
  - Setback levees can allow for habitat and reduce levee erosion.
- A8. Reoperation of dams to improve use of water for environment and people.
- Dam reoperation to restore natural hydrograph.
  - Modify dams for cold water releases to improve water quality (temp).
  - Reservoir reoperation.
- A9. CVFP process is opportunity to create major policy changes.
- Ecofriendly, state/federal government (ie: receptive).
  - Engage COE in eco restoration program planning.
  - High level policy changes.
    - Jurisdictional wetlands
    - ESA
  - Changing Corps policies.
- A10. Utilize existing incentive programs to engage private landowners in riparian restoration.
- To provide agricultural with more reliable future in terms of flood exposure and water supply.
  - Flood easements on farm land can protect farm land from development and still allow winter habitat.
  - To preserve some of the most productive ag land in the world in ag production.
- A11. Engage in long-term integrated planning and implementation that leverages existing partnerships.
- Ability to transform existing roles into new “holistic or system” motivated directives.
  - A “corridor approach” to flood management facilitates the coordination necessary to overcome regulatory and permitting challenges.
  - Work with USFWS bird habitat joint ventures to implement work.
  - Build on CA riparian habitat joint venture to focus restoration efforts.
  - Build more integrated communities – ones that are more self sufficient but support the larger system.
  - Use state parks land to mitigate impacts.
  - Collaborate and engage with Delta Conservation.
  - Manage corridors not specific project sites/repair sites. Ie: move away from project by project approach.
  - Many are aligned that the current approach to managing and maintaining the flood control system and protecting the environment doesn't work and it's time for a new paradigm.
  - Needs for water delivery to an alt. thru-Delta conveyance structure may be aligned with attributes of a national flow regime.
  - Increase in demand for adaptive management. Apply to improving riparian restoration in face of more climate extremes.
  - To expand ecological quality of lands throughout the valley.
- A12. Floodplain storage on agricultural lands is opportunity to attenuate the largest floods.
- TRLIA 1600 acre potential restoration site along Feather River.
  - Collaborate with ag to promote compatible ag within floodways.
  - Use floodplain storage/inundation as part of flood control operations.
  - Areas of less developed seasonal agriculture could periodically accommodate flood waters and reduce risk to cities.

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- Preserve ag. land through flood easements.
  - Tulare Lake. Fill me up!
- A13. Increase the use of levees and setback floodplains for access, trails, education, and recreation.
- Integrate recreational areas with provision of flood space.
  - More access to water recreation opportunities.
  - Transfer restored lands to state parks for management (and to provide recreation).
  - Increase access to rivers by creating trail networks in setback levees.
  - Levees as public access corridors.
  - Utilize levees for linear trails.
- A14. Use tools and concepts from Lund, et al. Williams, et al, (FAF) and other ecological and economic models to plan, prioritize and evaluate opportunities for multi-objective actions.
- Develop detail description of the system and how needs vary from reach to reach.
  - Increased floodplain inundation can help store water and improve ecosystems.
  - Allowing floodplain inundation as part of conjunctive GW management.
  - Technology available now for mapping all riparian in state and prioritizing for ecological function and flood management.
  - FAF, levee set back optimization (Lund, et al.) and other tools/concepts are available to help with planning/prioritizing.
  - Create economic and habitat models to evaluate planning options.
- B1. Utilize widest range of funding opportunities.
- Mitigation fees.
  - Easement agreements.
  - Develop habitat targets (acreage and distribution). This will attract money.
  - Funding from future climate change programs.
  - State (theoretically) has funds to support this effort.
  - Use of federal farm bill dollars for habitat restoration projects and farmland conservation.
  - Land purchases.
  - Insurance schemes for ag lands.
  - Reduces O&M and project costs by advance mitigation and habitat development.
- B2. Optimize existing/system operation to benefit multiple objectives.
- Comprehensive habitat management.
  - OCAP BO's.
  - FERC relicensing to re-op reservoirs.
  - Reservoir reoperation.
  - Systematic approach to operating system.
  - Revision of O&M manuals.
- B3. Modification and/or redesign of system or elements to accommodate multiple benefits.
- Setback levees.
  - Floodplain storage/attenuation.
  - Levee setback.
  - Really look at places where levee setbacks make sense.
  - Update levee vegetation guidelines in [Title 23](#) (use native plants).
  - Develop riparian map as a layer for the PLAN (use RHJV's methodology).
  - Identify lands along Sacramento/San Joaquin which are low enough in elevation to become floodplain habitat using less water.
  - Identification and prioritization of functional floodplains.
  - Widen Yolo bypass.

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- Opportunity to rethink and redesign the infrastructure to address current societal needs, including flood management, water supply, ecosystem, that is robust and sustainable, water quality, recreation, etc.
  - Combine improving flood conveyance with habitat restoration.
  - Opportunity to modernize old/outdated flood management infrastructure.
  - Opportunity for complete system redesign.
  - Use CVFPP as vehicle to redesign constrained river reaches.
  - Design new flood control projects to incorporate natural processes and habitat.
- B4. Coordinate CVFPP with other programs, scientific information and entities.
- Many diverse interests ready to do something.
  - Corridor management.
  - A number of well-thought out plans exist that can inform this planning effort – LVHJB, RHJV, Calfed docs and studies, Yolo bypass management plan, others.
  - Many diverse potential partners interested in addressing current problem bring many talents, and assets to the table.
  - Bring the farmers to our table and listen to them.
  - Coordination with other programs (eg: Habitat conservation plans, IRWMPs).
  - Coordination with goals of states' wildlife action plan.
  - Synthesize existing science to guide future planning.
  - There are a number of existing forums and collaborative groups throughout the valley that have learned to work effectively together that might add value to parts of the LVFMP process/effort. Leverage collaborative Yolo bypass working group and implementation.
  - Inform public regarding flood risks.
  - Engage regulatory agencies as project proponents.
  - Integrate CVFPP with Bay Delta conservation plan.
  - Integrate with Corps principles and guidelines reform.
  - Coordinate with existing and future restoration efforts. Eg: San Joaquin River restoration project.
- B5. Policy legislation changes.
- Sue the CVFPB for loss of habitat.
  - Safe harbor.
  - Habitat conservation plans (HCPs).
  - Variance for veg. on levees.
  - CVFPP as an NCCP/HCP.
  - Incorporate existing CALFED ERP into planning and implementation.
  - Use CALFED science program to provide independent science input.
  - Pass legislation to implement integrated floodplain management.
  - Disallow development in floodplains.
- C1. Implement levee setbacks and bypasses.
- Transition to system of setback levees.
  - Levee setback projects to introduce new floodplain and improve connectivity.
  - Levee setbacks and by passes.
  - Create a large bypass on the San Joaquin.
  - Align levee system setbacks with goad infrastructure to leverage O&M funds/construction funds and meet ACOEE levee maintenance mandates.
- C2. Re-operate to restore hydrological processes.
- Re-operate water management to improve flows.
  - Consider reservoir reoperation to allow ecologically beneficial flooding.
  - Restore hydrological processes.

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- Reservoir re-operation study for:
    - Flood control/hydropower
    - Water shortage (M&I, ag.)
    - Downstream flow (habitat)
    - Better utilization of resource
  - Funding to assess reservoir reoperations that can accommodate and integrate habitat/ecosystem benefits/flood management/water supply demands more effectively.
- C3. Develop private lands policies.
- Modify Williamson Act to accommodate habitat restoration.
  - Restrict development in low lying areas/floodplain.
  - Accommodate ag/working landscapes into an ecosystem stewardship strategy (think easements/pay to grow riparian/wetland habitats/allow levee setbacks with economic incentives).
  - Development in floodplains should be mitigated with additional flood capacity.
  - Support California agriculture by developing a means of paying for environmental services provide by private lands.
  - Take advantage of other local land-use planning efforts, including HCP?NCCP, general plan updates, NRCS programs.
  - Provide incentives to engage landowners in flood protection and ecological restoration.
  - Expand safe harbor agreement for landowners.
  - Develop safe harbor programs to reduce permitting conflicts with threatened and endangered species.
- C4. Restore and strengthen habitats though linkage and large scale planning.
- Linear parks and park lands would provide species stability by linking habitat.
  - Floodplain enlargements could be located in recharge areas.
  - Recreation planning could overlap floodplain planning.
  - Create habitat restoration projects that provide mitigation to offset project impacts.
  - Restore riparian habitat.
  - Create large habitat mitigation banks to coordinate the habitat preservation.
- C5. Improve public awareness with environmental education.
- “Katrina effect” to sell public on level of risk and need to adapt system for future (levee setbacks/protect deep floodplains).
  - Develop environmental education programs for service based learning with restoration programs and monitoring.
  - Educate the public to create momentum/support for extensive changes in the system (like a new bypass or development restrictions).
  - Improve public awareness about key environmental issues and how they relate to the system in place.
- C6. Develop bioengineering approaches to flood management and use BMPs.
- Re-write Title 23 to address native plant species.
  - Water quality. Minimize water quality impacts due to land use.
  - Incorporate data from local weed management areas.
  - Coordinate invasive species management throughout watersheds to make efforts efficient.
  - Habitat protection.
    - Improved practices (pools, vegetation, wetlands)
    - Vegetation practices.
  - Incorporate data from other programs for species diversity and habitat programs.
  - Use of native vegetation to manage conveyance and sediment transport.
  - Use native vegetation to strengthen levees.

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### C7. Develop and leverage new and sustainable funding.

- Establish mechanism to fund appropriate level of maintenance given expected climate change challenges (eg: extreme flood events). Beneficiary pays?
- Require that flood control costs are borne by those who receive benefit.
- Public funding for flood control could be combined with habitat funds.
- Mitigation funds for SWP activities could be used to pay for floodplain habitat.
- Ranking, prioritizing, and funding high-quality properties for acquisition.
- Funding. Integrate funding into new development for supporting required improvements.
- Utilize additional funding mechanisms. Ex: water section 12585.7 provides that the state will pay up to 20% more if project contributes to endangered species habitat, recreation, etc.

### C8. Integrate proposed solutions.

- Look at the system as a whole and not piecemeal.

### C9. Utilizing new science and models to inform management.

- Provides the opportunity to test newly developed tools and models.
- Hydraulic models used for maintenance.
- Funding providing study and analysis to inform flood management and policy.
- Develop/use new hydraulic models to understand complex system and options to change/modify flood system features.
- Consider future conditions (climate, urbanization) in refining/improving system.

### C10. Develop land management efficiencies.

- Legislative mandate to incorporate environmental stewardship.
- Floodways could be managed for both habitat, agriculture and recreation.
- Habitat projects could be managed by local land trusts and other NGO's.
- Creates opportunities for partnership between agencies to develop and manage parklike areas ~ DWR and CSP.

### C11. Diversify and create new uses for public access and address public recreation demand.

- Flood plain management.
  - Study feasibility of setback levees.
  - 200 year level of conveyance capacity or more (impacts).
  - Buffer zones.
- Levee adjustments could enhance access. Ex: slope and shape of levee.
- Create open space and parks along levees ~ linear parks and strengthen ecosystems, improve access.

### C12. Plan for economic sustainability.

- Economic sustainability
  - Agricultural practices.
  - Fisheries, wildlife.
  - Flood control.
  - Water supply.
- Provide economic incentives/benefits to ag lands/open space for restoring floodplain connectivity and habitat.